REMARKS:

As the examiner can see, claims 1, 13 and 21 have been amended to state that the recombinant vesicular stomatitis virus (VSV) particle comprises a nucleic acid molecule encoding a viral hemorrhagic fever (VHF) glycoprotein inserted into the viral genome wherein the foreign glycoprotein has replaced the native VSV glycoprotein and only the VHF glycoprotein is expressed on the surface of the recombinant VSV particle.

Support for these amendments may be found at least at page 5, line 26 to page 6, line 11 (VHF glycoprotein) and at least on page 6, lines 23-27 (only foreign glycoprotein expressed on the surface of the recombinant VSV particle).

As discussed below, this arrangement, wherein the recombinant VSV particle contains a foreign glycoprotein in place of VSV G rather than in addition to as taught by the prior art has several advantages. As discussed in the prior art references, the VSV particles are highly immunogenic. As such, if immunized with a recombinant particle that includes both native VSV G and foreign glycoprotein on the surface of the particle, there are two possible outcomes, depending on the patient's immune system. If the patient has previously been challenged with a VSV, the patient's immune system will recognize the VSV G on the particle surface and the particle will be removed or neutralized by the host immune system prior to an immune response being generated against the foreign glycoprotein. Thus, in this scenario, the vaccination with the VSV G/foreign glycoprotein hybrid particle would be unsuccessful due to prior exposure to VSV. In the second scenario, wherein the patient has not previously been exposed to VSV, antibodies are generated against the glycoproteins on the surface of the VSV particles, meaning that the patient would now be immunized against not only the foreign glycoprotein but also against VSV G. As a

consequence, this would mean that such a VSV G/foreign glycoprotein hybrid particle system could only be used once per person as a vaccine.

In Applicant's invention, the recombinant particle contains only VHF glycoprotein which as discussed above is taught against by the prior art. As a result, the system can be used multiple times to inoculate one individual against different non-VSV glycoproteins and the vaccination is effective even in case where there has been a previous VSV exposure.

Support for new claims 29-31 may be found at least on page 7, lines 2-12 and in claims 3, 15 and 23 respectively.

Claims 1, 5, 13, 17, 19-21, 25 and 27-28 were rejected under 35 USC 102(a) as anticipated by Khan.

The office action states that Khan 'teaches a recombinant vesicular stomatitis virus (VSV) expressing foreign proteins that elicit specific protective immunity (Abstract). Khan teaches that the VSV glycoprotein (G) gene was deleted from the full-length cDNA VSV genomic plasmids containing the RSV G such that the RSV G genes replaced VSV G in viral genome (page 11081, second column)... Khan teaches a method of eliciting an immune response in mice by intranasal vaccination with a recombinant VSV expressing RSV G (Abstract). Khan teaches about vaccine development and passive immunization with a recombinant VSV expressing RSV G (page 11079, last paragraph).'

It is respectfully requested that the examiner reconsider this rejection in view of the amendments to the claims. Specifically, applicant notes that on 1080, first column, 2nd full paragraph, Khan states 'In this study, we demonstrate the biochemical features of attenuated, non-propagating VSVs expressing RSV glycoproteins G and F. These nonpropagating viruses (ΔG) lack the VSV gene, which is essential for infectivity and are propagated on BHK cells that supply the VSV G glycoprotein in

trans.' (emphasis added). Thus, Khan teaches that the surface of the particles must be a mixture of native VSV G and RSV G and F and that if VSV G is not provided, the particle will be non-infective. Thus, in view of this reference, it is in fact surprising that applicants were able to develop a recombinant particle in which only VHF G is expressed on the surface of the particle. As discussed on page 6, lines 25-27 of the instant application, the inventors' particles are 'an infectious system that stimulates infection with the foreign virus and yet does not cause disease or the symptoms associated with the foreign virus'. Furthermore, as discussed in the paragraph bridging pages 6 and 7 of the application as filed, the particle must be propagating in order to generate a protective immune respose as 'gamma-irradiated virus gave no protection'.

Claim 1 was rejected under 35 USC 102(b) as anticipated by Schnell.

The office action states that Schnell 'teaches about a recombinant vesicular stomatitis virus with a deletion of the glycoprotein and expressing the HIV-1 receptor CD4 and coreceptor CXCR4 which has been substituted for the VSV G gene (page 849, first and fourth paragraph).

Regarding Schnell, it is respectfully requested that the examiner reconsider this objection in view of the amendments to claim 1. Specifically, applicants note that as discussed in the paragraph bridging pages 849 and 850, the particles developed by Schnell also required a complementary plasmid supplying VSV G in trans for recovery of particles and these particles were only capable of a single round of infection. Thus, Schnell teaches a recombinant particle which expresses both CD4 and VSV G on the surface of the particle and the particle is capable of only a single round of infection because it lacks VSV G in the viral genome. As discussed above, that is not applicants' invention wherein the particle contains only VHF glycoprotein and is propagating.

Claims 1-3, 5, 13-15, 17, 19-23 and 25-28 were rejected under 35 USC 103(a) as unpatentable over Khan and Takada.

The office action states that 'Takada ... teaches about Ebola virus glycoprotein incorporated into VSV particles (Abstract). Takada also teaches that VSV has been used as a model system for studying the replication of RNA viruses and its use as a vector to express foreign proteins (page 14764, second column, first full paragraph).'

It is believed that applicants' invention has been distinguished from Khan in view of the amendments to the claims and the arguments detailed above.

Regarding Takada, it is noted that this reference teaches a viral genome wherein VSV G protein has been substituted with green fluorescent protein and wherein Ebola G protein has been provided in *trans*. While the resulting particle is infective once, it would not be propagating as there is no functional G protein as the viral genome contains green fluorescent protein.

In view of the foregoing, further and more favorable consideration is respectfully requested.

Respectfully submitted
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CERTIFICATION OF FACSIMILE TRANSMISSION

I hereby certify that this paper is being facsimile transmitted to the United States Patent and Trademark Office, Fax No. (571) 273-8300, on March 13, 2007.

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Doris Jones